A robust flight price forecasting framework with uncertainty estimation

Prediction de prix de vols robuste et avec estimation de l'incertitude

Mots clés :
● Directeur de thèse : pietro MICHIARDI
● Co-encadrant(s) :
● Unité de recherche : Laboratoire de recherche d'EURECOM
● Ecole doctorale : École Doctorale Informatique, Télécommunications, Électronique de Paris
● Domaine scientifique principal: Sciences et technologies de l'information et de la communication

Résumé du projet de recherche (Langue 1)

Forecasting plays a critical role within the travel industry. The establishment of revenue management systems in the eighties, led many actors to use data analysis and sophisticated mathematical techniques in order to predict the willingness to pay of customers and maximise their profits.

In the context of this PhD Thesis we will explore statistical modelling techniques for the problem of long-term forecasting of time series data. In particular, we will focus on challenges related to: 1) algorithmic scalability, whereby the large scale nature of the training data calls for distributed learning approaches; 2) robustness to noisy data, such that the proposed algorithms will continue operation in spite of potential problems in upstream methods of data collections; 3) accurate quantification of uncertainty and calibrated models, such that the output of the designed algorithms will be full predictive distributions, thus enabling decision making with confidence information about the quality of predictions.

The Thesis is supported by Amadeus, which will provide essential data, and real-world constraints to the scientific problem addressed.